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EXAMINER

BADER, ROBERT N.

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte JOHN WILLIAM HOWSON

Appeal 2017-000367
Application 13/066,957
Technology Center 2600

Before ST. JOHN COURTENAY III, JOHN A. EVANS, and SCOTT E. BAIN, *Administrative Patent Judges*.

EVANS, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant¹ seeks our review under 35 U.S.C. § 134(a) of the Examiner's Final Rejection of Claims 1–3 and 5–20. App. Br. 1. We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.²

¹ The Appeal Brief identifies Imagination Technologies Limited, as the real party in interest. App. Br. 1.

² Rather than reiterate the arguments of Appellant and the Examiner, we refer to the Appeal Brief (filed January 28, 2016, "App. Br."), the Reply Brief (filed September 28, 2016, "Reply Br."), the Examiner's Answer (mailed July 28, 2016, "Ans."), the Final Action (mailed July 29, 2015, "Final Act."), and the Amended Specification (filed May 4, 2015, "Spec.") for their respective details.

STATEMENT OF THE CASE

The claims relate to a method and apparatus for tessellating patches of surfaces in a tile based three dimensional computer graphics rendering system. *See Abstract.*

INVENTION

Claims 1, 10, and 19 are independent. An understanding of the invention can be derived from a reading of exemplary Claim 1, which is reproduced below:

1. A method for processing tessellated patches of surfaces in a tile-based three-dimensional graphics rendering system comprising:
 - deriving, in a tiling unit, a per-tile list of primitive indices for tessellated primitives produced from a higher-order surface patch;
 - using the per-tile list of primitive indices for each tile to identify visible tessellated primitives for that tile;
 - deriving domain points for the tessellated primitives that were identified as being visible;
 - deriving attributes for the tessellated primitives that were identified as being visible using data defining the higher order surface patch; and
 - shading, by a programmable shading unit, the tessellated primitives that were identified as being visible using the derived attributes for the visible tessellated primitives.

References and Rejections

Kajiya, *et al.*, US 5,864,342 Jan. 26, 1999

Anjul Patney and John D. Owens, *Real-Time Reyes-Style Adaptive Surface Subdivision*, 27 ACM Transactions on Graphics (Proceedings of ACM SIGGRAPH Asia) 143:1–143:8 (December 2008)

Christian Eisenacher, *et al.*, *Real-Time View-Dependent Rendering of Parametric Surfaces*, Assn. for Comp. Mach., Inc. 137–144 (2009).

The claims stand rejected as follows:

1. Claims 1–3, 5–9, 19, and 20 stand rejected under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over Eisenacher and Patney. Final Act. 5–29.
2. Claims 10–18 stand rejected under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over Eisenacher and Kajiya. Final Act. 29–42.

ANALYSIS

We have reviewed the rejections of Claims 1–3 and 5–20 in light of Appellant’s arguments that the Examiner erred. We consider Appellant’s arguments *seriatim*, as they are presented in the Appeal Brief, pages 6–12.

CLAIMS 1–3, 5–9, 19, AND 20: OBVIOUSNESS OVER EISENACHER AND PATNEY

Appellant argues these claims as a group in view of the limitations of Claim 1. App. Br. 6.

Deriving a per-tile list of primitive indices

The Examiner finds Eisenacher substantially teaches the limitations of Claim 1 except Eisenacher fails to teach the limitation “in a tile based three-dimensional graphics rendering system.” Final Act. 5. The Examiner finds Patney teaches this limitation by disclosing: “Regardless of visibility, on-screen Reyes primitives cannot be discarded until transparency and blending have been resolved. To reduce this problem of potentially unbounded data, most implementations divide the screen into screen-space tiles.” *Id.* (quoting Patney, §3.2, ¶ 2).

Appellant contends neither Eisenacher, nor Patney, nor any combination thereof, teaches “deriving, in a tiling unit, a per-tile list of primitive indices for tessellated primitives produced from a higher-order surface patch,” as recited in Claim 1. App. Br. 6.

The Examiner finds “Appellant’s argument that because Eisenacher’s description of Patney does not include screen-space tiling, it would not be obvious to one of ordinary skill in the art to modify Eisenacher’s system to perform screen-space tiling as taught by Patney, is a piecemeal analysis of the rejection.” Ans. 9.

Appellant replies Eisenacher’s “subdivision of patches” is a much broader concept than deriving the claimed “per-tile list of primitive indices.” Reply Br. 3.

Our review of the Record fails to find where either Eisenacher or Patney teaches the claimed “per-tile list of primitive indices.” Nor does the Examiner direct our attention to such teaching in the prior art. To meet the prima facie burden of production, the Examiner must set forth the statutory basis of the rejection and the reference or references relied upon in a

sufficiently articulate and informative manner as to meet the notice requirement of 35 U.S.C. § 132(a). *See In re Jung*, 637 F.3d 1356, 1363 (Fed. Cir. 2011). For us to affirm the Examiner’s rejection on this record would require speculation on our part. We decline to engage in speculation.

Because we do not sustain the Examiner’s rejection for the reasons discussed herein, we need not address Appellant’s further arguments. *See Beloit Corp. v. Valmet Oy, TVW* 742 F.2d 1421, 1423 (Fed. Cir. 1984) (finding an administrative agency is at liberty to reach a decision based on “a single dispositive issue”).

CLAIMS 10–18: OBVIOUSNESS OVER EISENACHER AND KAJIYA.

Appellant contends neither Eisenacher nor Kajiya teach “deriving, in a tiling unit, a per-tile list of primitive indices for tessellated primitives produced from a higher-order surface patch,” as claimed. App. Br. 11.

The Examiner finds the “per-tile list of primitives” limitation is not present in independent Claim 10, which only requires “means for performing hidden surface removal on the patch.”

Contrary to the Examiner, Claim 10 explicitly recites “means for deriving a per tile list of primitive indices for tessellated primitives produced from a patch.” As discussed above, the Examiner has not directed our attention to a teaching of such limitation in the prior art.

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Application 13/066,957

DECISION

The rejections of Claims 1–3 and 5–20 under 35 U.S.C. § 103(a) are
REVERSED.

REVERSED